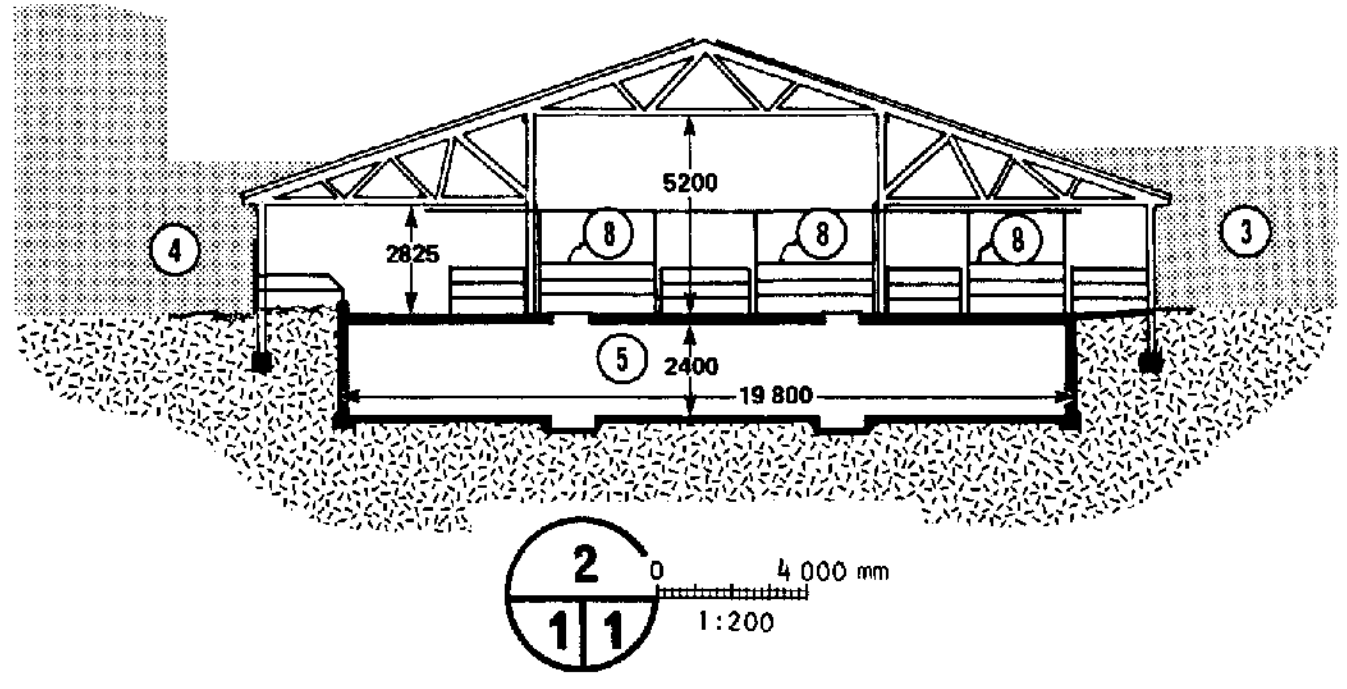
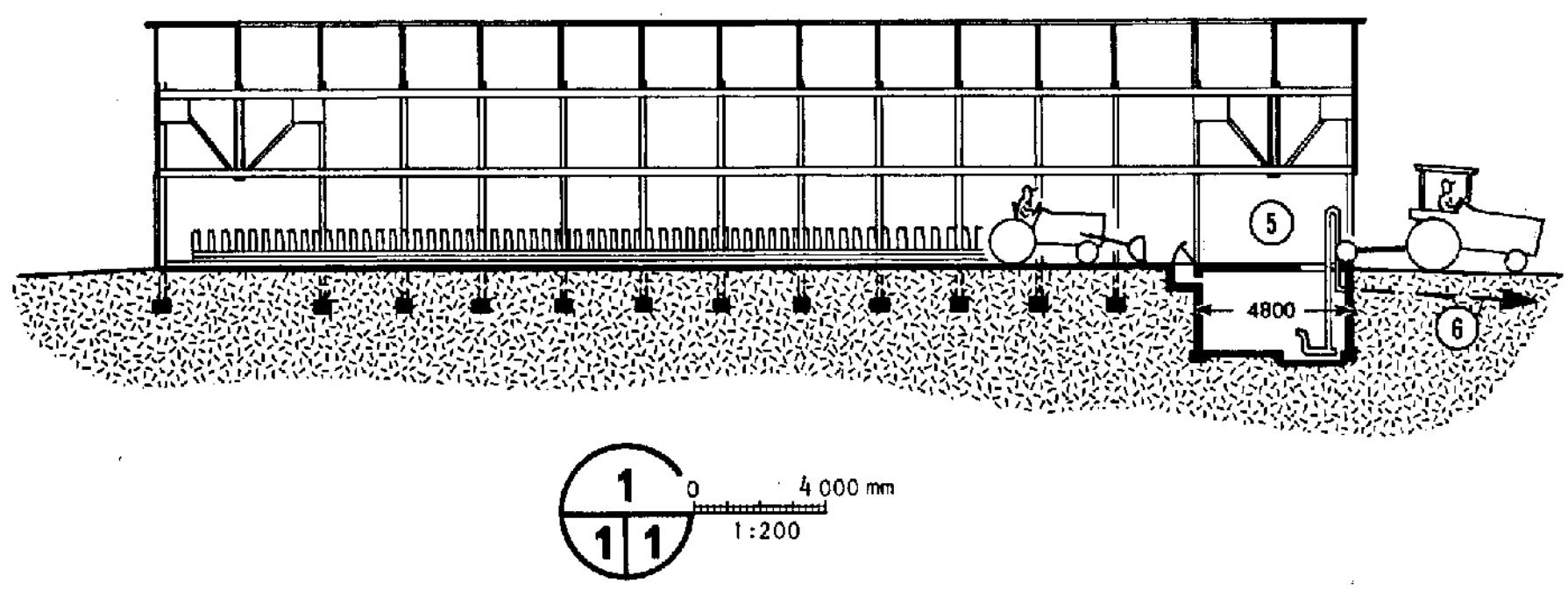
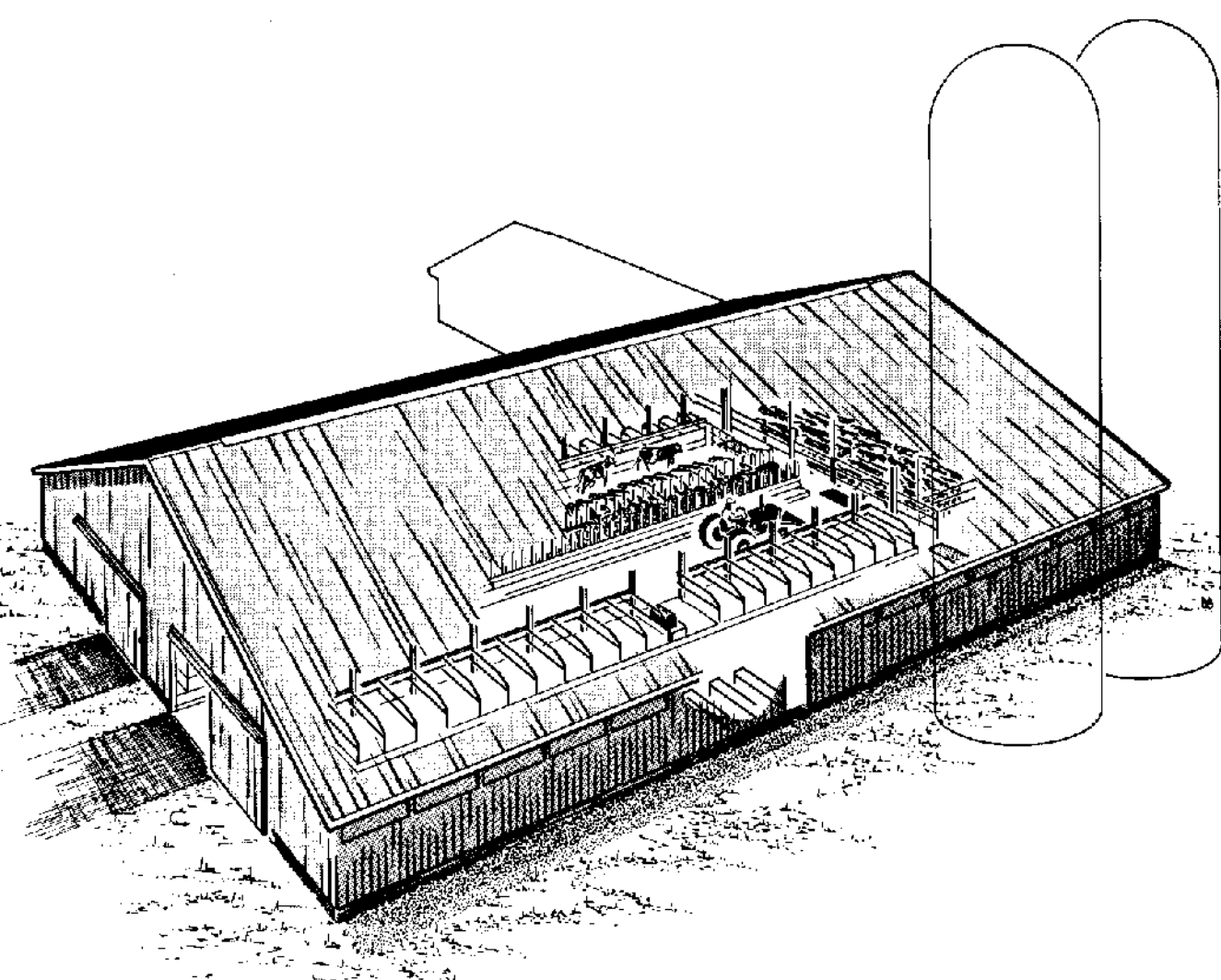
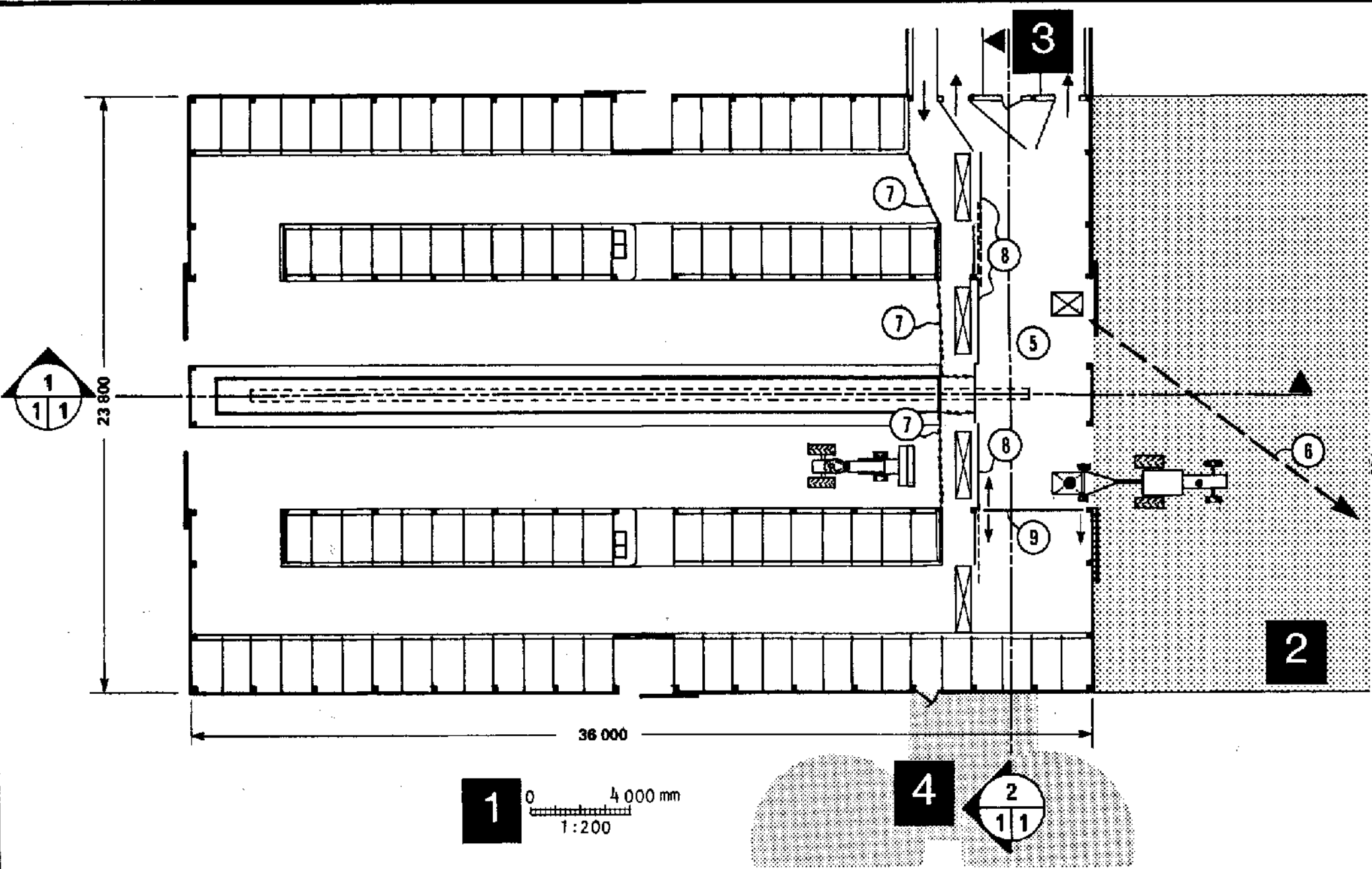


ELECTRICAL

- | | | |
|--------------------|-------------------|---------------------------------------|
| ceiling | wall | |
| (L _p) | (L _w) | Incandescent Lampholder, Pigtail Type |
| (L _{wp}) | (L _w) | Weatherproof Incandescent Lampholder |
| (⊖) | (⊖) | Duplex Convenience Outlet |



- ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS OTHERWISE SPECIFIED
- 1 free stall dairy system - 100 cows
 - 2 expand free stall dairy system to 200 cows
 - 3 milking parlor: 100 free stalls see plan M-2501, 200 free stalls see plan M-2502
 - 4 feed center
 - 5 holding area with manure storage tank below
 - 6 125 mm transfer pipe to long-term storage
 - 7 double chain gate (truck tire chain or equal)
 - 8 sliding gates, from by-passing tracks overhead
 - 9 mechanized crowding gate

SPECIFICATIONS

Unless otherwise specified, all cast-in-place concrete is to be min. 30 MPa at 28 days, 6% air-entrainment

All reinforcing steel to be min. Grade 300 deformed bars; provide 50 mm concrete cover over reinforcing steel

All exposed steel to be galvanized or painted to resist corrosion from moisture and manure gases

All wood indicated 'pressure-treated' is CCA pressure-treated to a net retention of 6.4 kg/m³ (ground contact specification, CSA-080 Wood Preservation)

All framing lumber is No. 2 (or better), S-P-F species group, unless otherwise specified

This plan conforms to the requirements of the Canadian Farm Building Code. The user of this plan must ensure that the design criteria indicated herein will meet all local design conditions, building regulations and special requirements.

ONE SET OF DRAWINGS AND LEAFLETS SHOULD INCLUDE

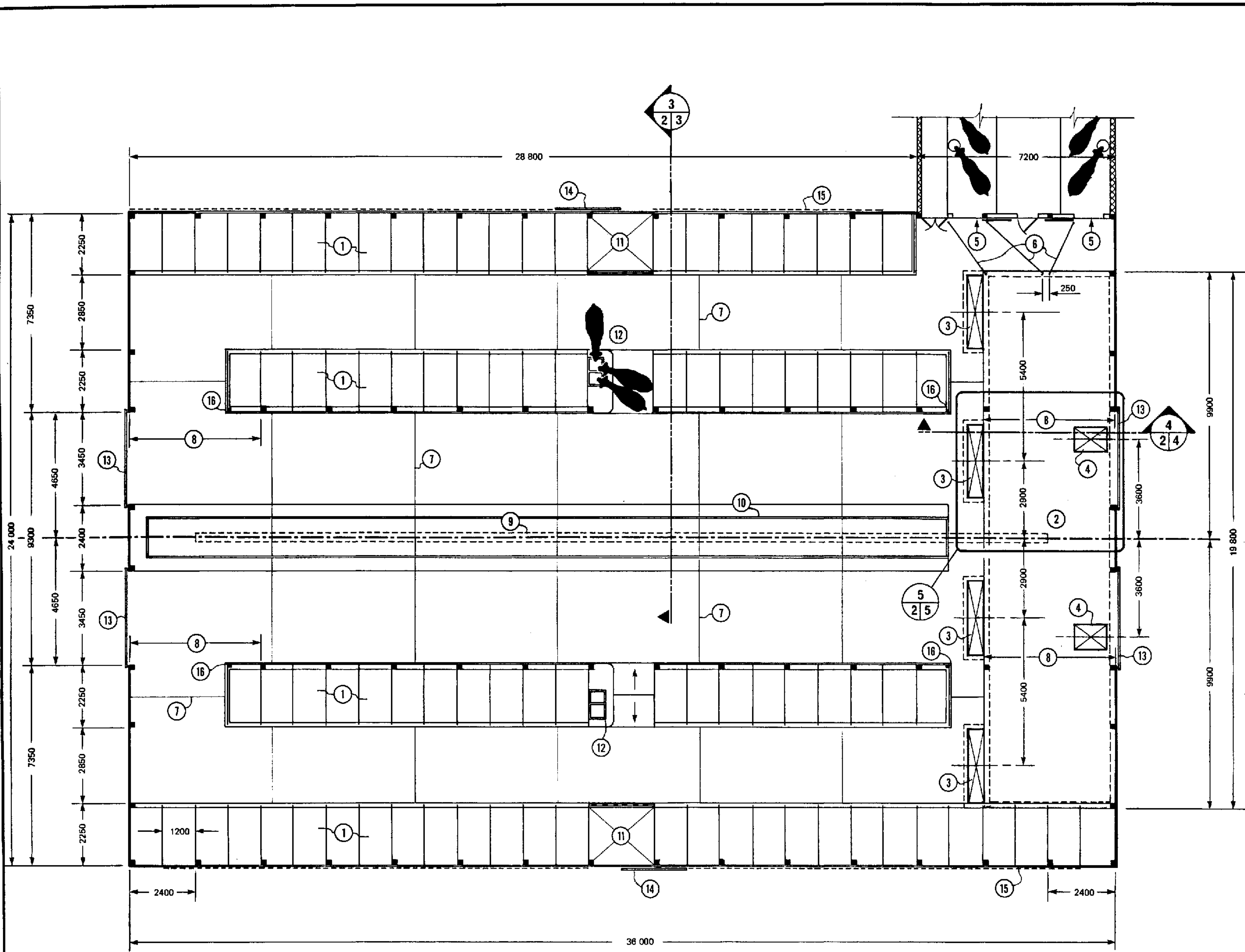
- | | | |
|------------|--|---|
| CPS no. | sheet no. | |
| M-2104 | -1- | free stall dairy system 100 to 200 cows |
| M-2104 | -2- | floor plan |
| M-2104 | -3- | cross section |
| M-2104 | -4- | section showing truss support |
| M-2104 | -5- | manure tank details |
| AND | | |
| M-9067 | 7.35 m | single slope roof truss, heavy duty |
| M-9219 | 9.6 m | gable roof doubled truss, medium duty |
| OR | | |
| M-9069 | 7.35 m | single slope doubled truss, heavy duty |
| M-9220 | 9.6 m | gable roof doubled truss, heavy duty |
| AND ONE OF | | |
| M-2501 | Herringbone milking center (single return alley) | |
| M-2502 | Herringbone milking center (two return alleys) | |
| AND | | |
| M-2658 | Tombstone feed fence | |
| M-9102 | Truss erection and bracing | |
| M-9302 | Prefabricated insulated roof panels | |
| M-9341 | Sliding doors | |
| M-9351 | Plastic curtain wall ventilation | |

SYM	REVISIONS	CHECKED	DATE	APPROVED
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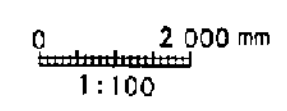
CANADA PLAN SERVICE

FREE STALL DAIRY SYSTEM
100 to 200 COWS

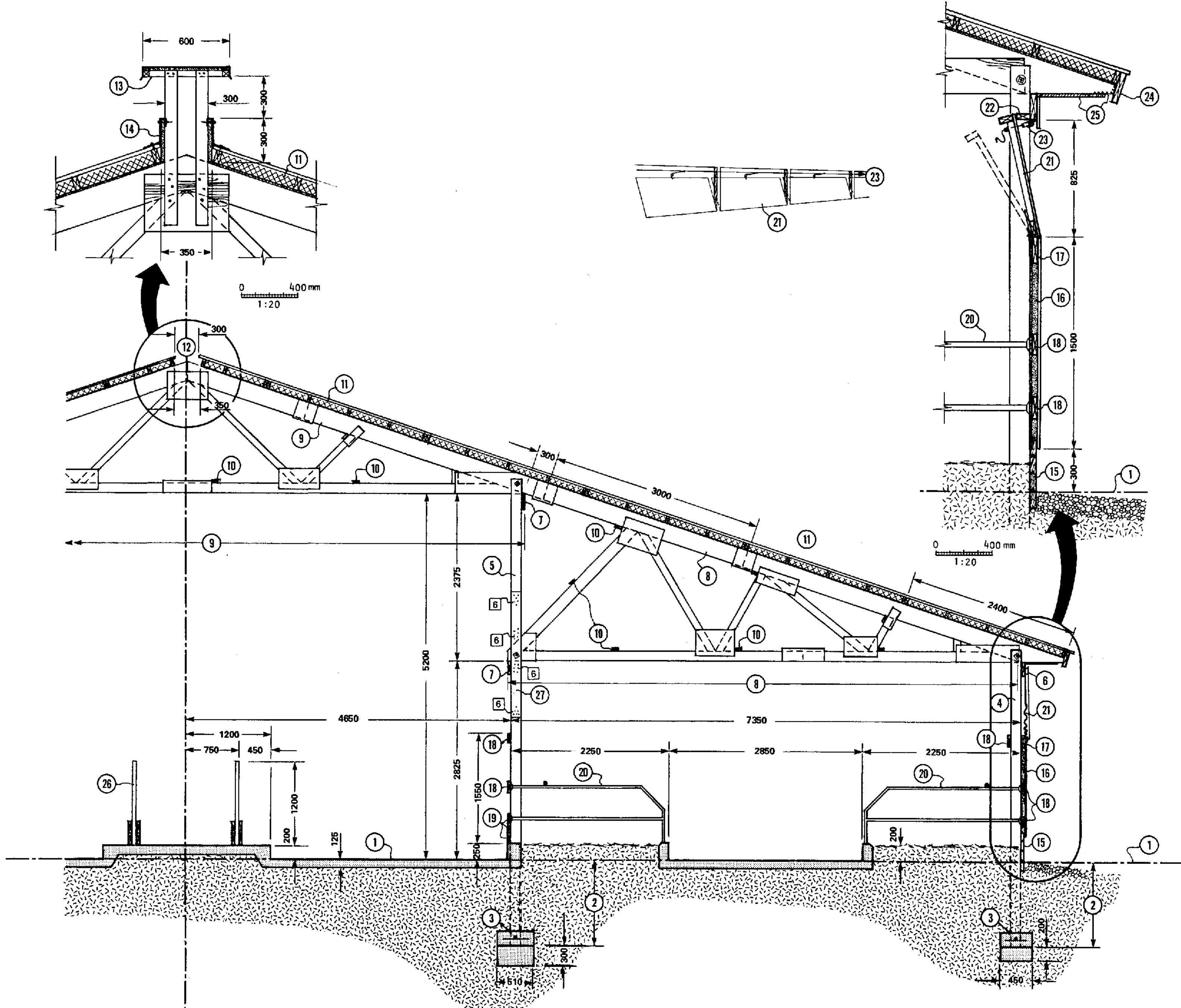
DESIGNED <i>D.I.A.</i>	DATE 84-08	PLAN
DRAWN D. BROWN	REVISED	M-2104
TRACED	DETAIL NUMBER <i>A</i>	SHEET 1 OF
CHECKED <i>J.A.M.</i>	ORIGINATES ON SHEET <i>B</i>	
	DRAWN ON SHEET <i>C</i>	



- ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS OTHERWISE SPECIFIED
- 1 1200 x 2250 mm free stalls, earth or concrete floor
 - 2 4800 x 19 600 x 2400 mm deep liquid manure storage tank
 - 3 600 x 2700 mm manure scrape-in hatch, see cover details on sheet 5
 - 4 900 x 1200 mm pump-out hatch with 5" coupling & pumpout pipe to remote storage, see sheets 4 & 5
 - 5 floor slopes up to milking parlor 1:50, vacuum operated sliding doors
 - 6 guide fence 3 - 2" galv. pipe rails with end posts set in concrete
 - 7 crack control joints @ 5200 mm oc
 - 8 4800 mm span, for truss support see sheet 4
 - 9 open roof ridge vent, stops 2400 mm from each end of roof
 - 10 feed bunk 1500 x 29 000 mm, with overhead conveyor; see leaflet M-2658
 - 11 optional giant bale feeder with tombstone feed fence or additional 2 free stalls
 - 12 frost-proof waterers on 150 mm high curb over 200 mm high concrete slab, slope to alleys 1:50
 - 13 3600 mm wide x 2700 mm high sliding door
 - 14 2400 x 2400 mm sliding doors 350 mm off ground, set door guides on planking
 - 15 wall ventilation, see sheet 3; for plastic curtains, stop openings 2400 mm from corners and extend curtain 1200 mm beyond opening
 - 16 secure end planks with 89 x 89 x 1800 mm post, set in concrete



SYM	REVISIONS	CHECKED	DATE	APPROVED
FLOOR PLAN				PLAN
DESIGNED <i>D.I.M.</i>	DATE 84-08	M-2104		
DRAWN D.BROWN	REVISED	SHEET 2 OF		
TRACED	DETAIL NUMBER <i>A</i>	ORIGINATES ON SHEET <i>B</i>		
CHECKED <i>J.A.M.</i>	<i>A</i> <i>B</i> <i>C</i>	DRAWN ON SHEET <i>C</i>		



ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS OTHERWISE SPECIFIED

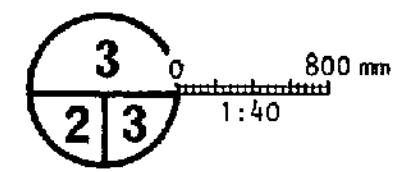
- 1 datum line
- 2 concrete footing, based on soil strength 200 kN/m², snow load 2.4 kN/m²; depth to below frost, 1200 mm min.
- 3 drill poles and retreat holes with wood preservative, insert 2 - 10M x 400 mm rebars, or use 8 - 150 mm spikes, place concrete around rebars and spikes
- 4 140 x 140 x 4200 mm CCA-pressure-treated poles @ 2400 mm oc, see fastening procedure sheet 5
- 5 140 x 140 x 6600 mm poles, see sheet 5
- 6 38 x 184 mm side wall plate
- 7 38 x 235 mm plate beam
- 8 single slope truss, 7.35 m span
- 9 gable roof doubled truss, 9.6 m span
- 10 38 x 89 mm stiffeners (continuous)
- 11 insulated roof system to span 2400 mm truss spacing, see plan M-9302
- 12 open ridge vent, stops 2400 mm from each end wall, soak exposed truss joints (upper & lower chord) with wood preservative
- 13 optional ridge cap, made of 38 x 89 mm uprights and 38 x 38 mm frame covered with 12.5 mm plywood & galv. steel flashing; treat with wood preservative
- 14 25 x 300 mm extruded polystyrene (STYROFOAM SM or equal), protected with galv. metal flashing
- 15 4 - 38 x 140 mm CCA-pressure-treated tongue & groove planking continuous; rabbet top for plywood
- 16 wall composed of: 9.5 mm plywood (face grain vertical) nail over poles from outside; polyethylene vapor barrier; nail 17, 18, 19 over plywood; 38 mm fiberglass or polystyrene insulation; exterior siding
- 17 38 x 184 mm top girt
- 18 38 x 140 mm continuous, position to suit 20
- 19 38 x 140 mm CCA-pressure-treated planking
- 20 free stall partitions, see Q-2002
- 21 plastic curtain wall ventilation (M-9351), or tilt-in wall panel made of FRP translucent siding on 38 x 89 mm frame
- 22 spacer block from 38 x 89 mm, allows for working of pulley 23
- 23 marine pulley, 3 mm 7 x 19 strand marine cable to boat winch
- 24 38 x 235 mm face board
- 25 19 mm soffit board, 50 mm continuous vent slot
- 26 feed bunk, 1500 x 29 000 mm
- 27 38 x 140 x 1800 mm scab both sides of pole 5, nail each scab with 24 - 102 mm spiral nails

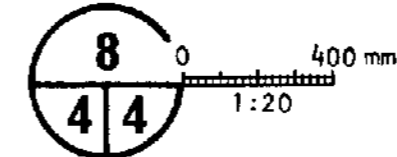
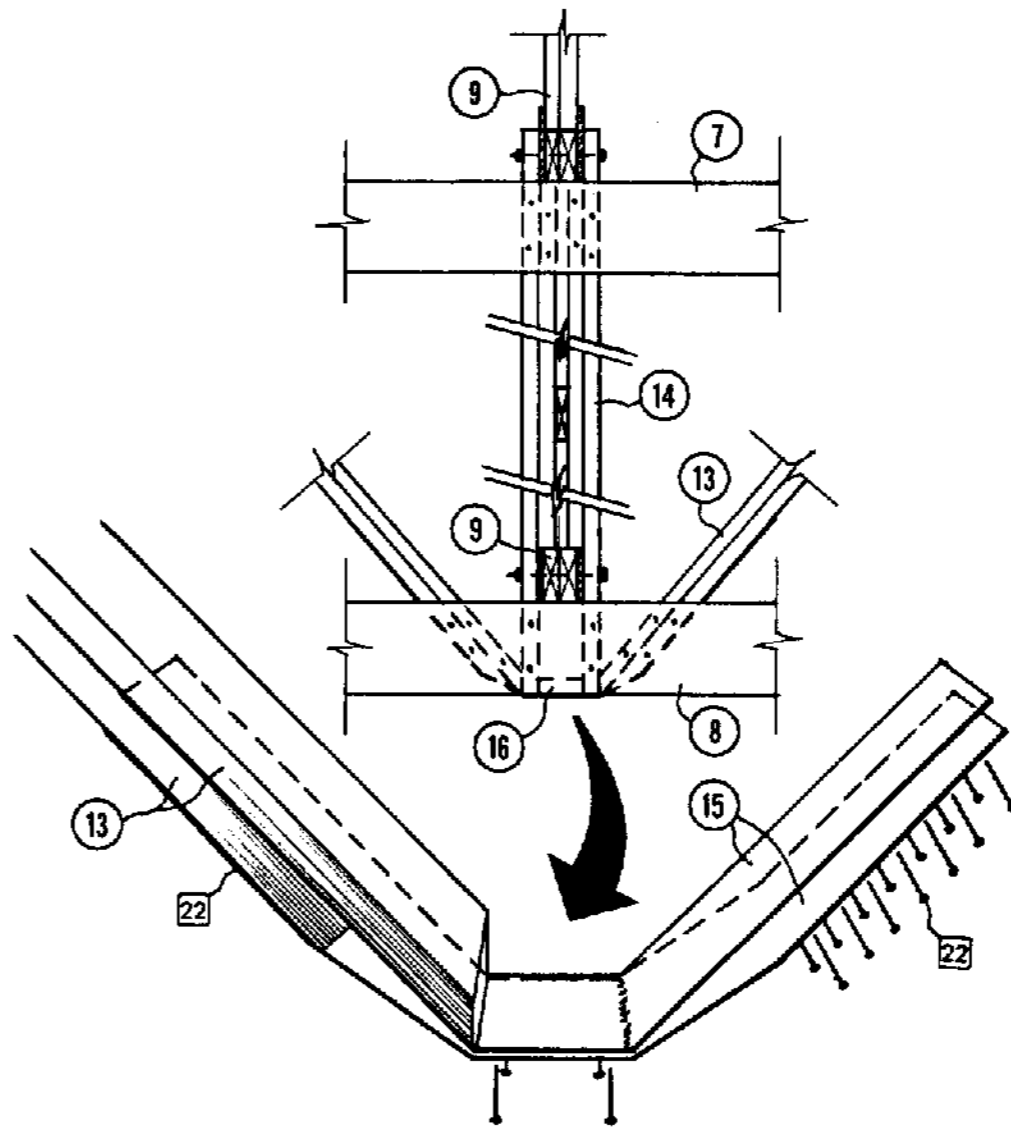
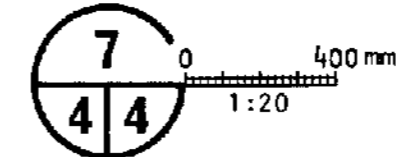
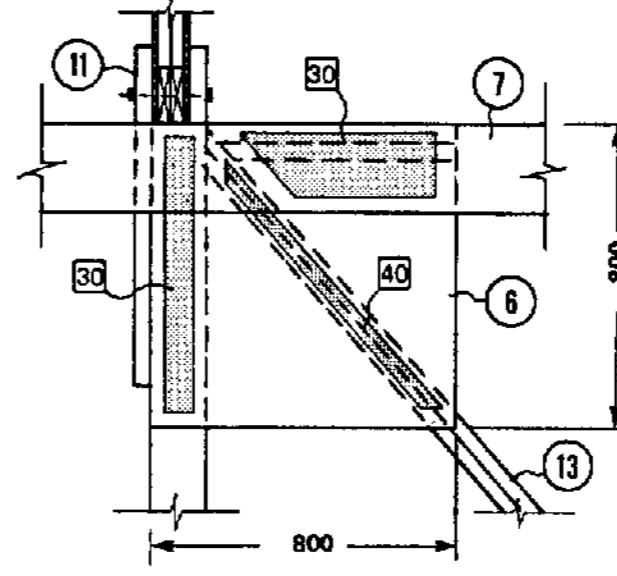
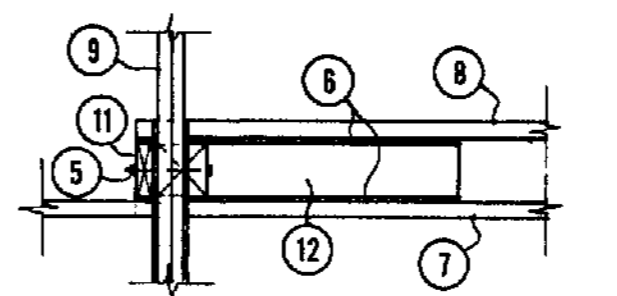
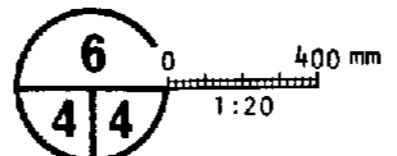
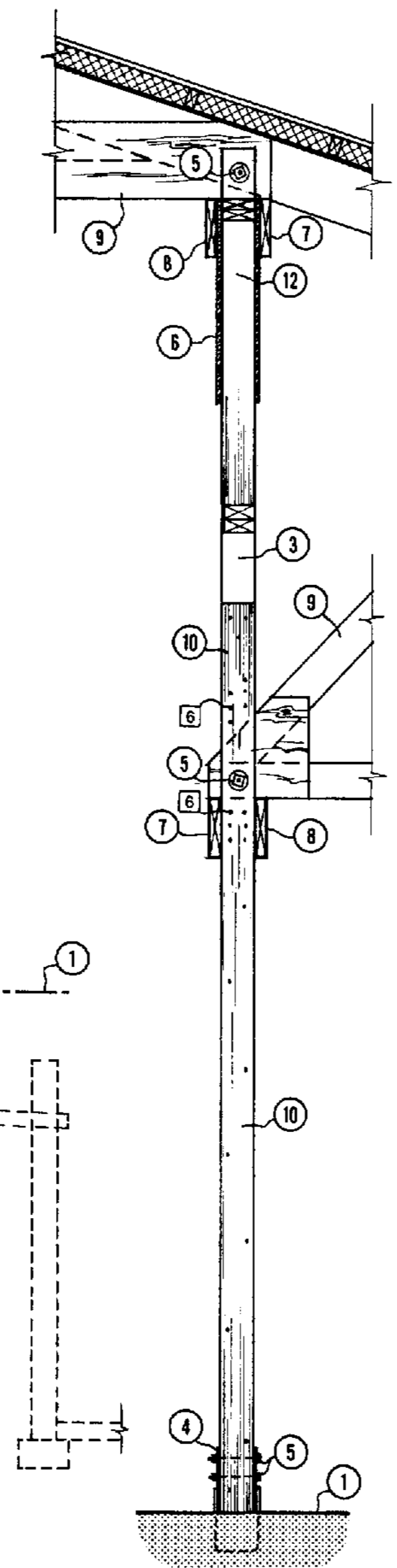
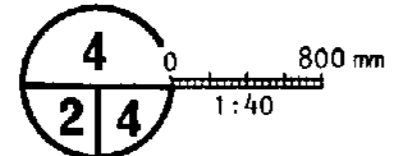
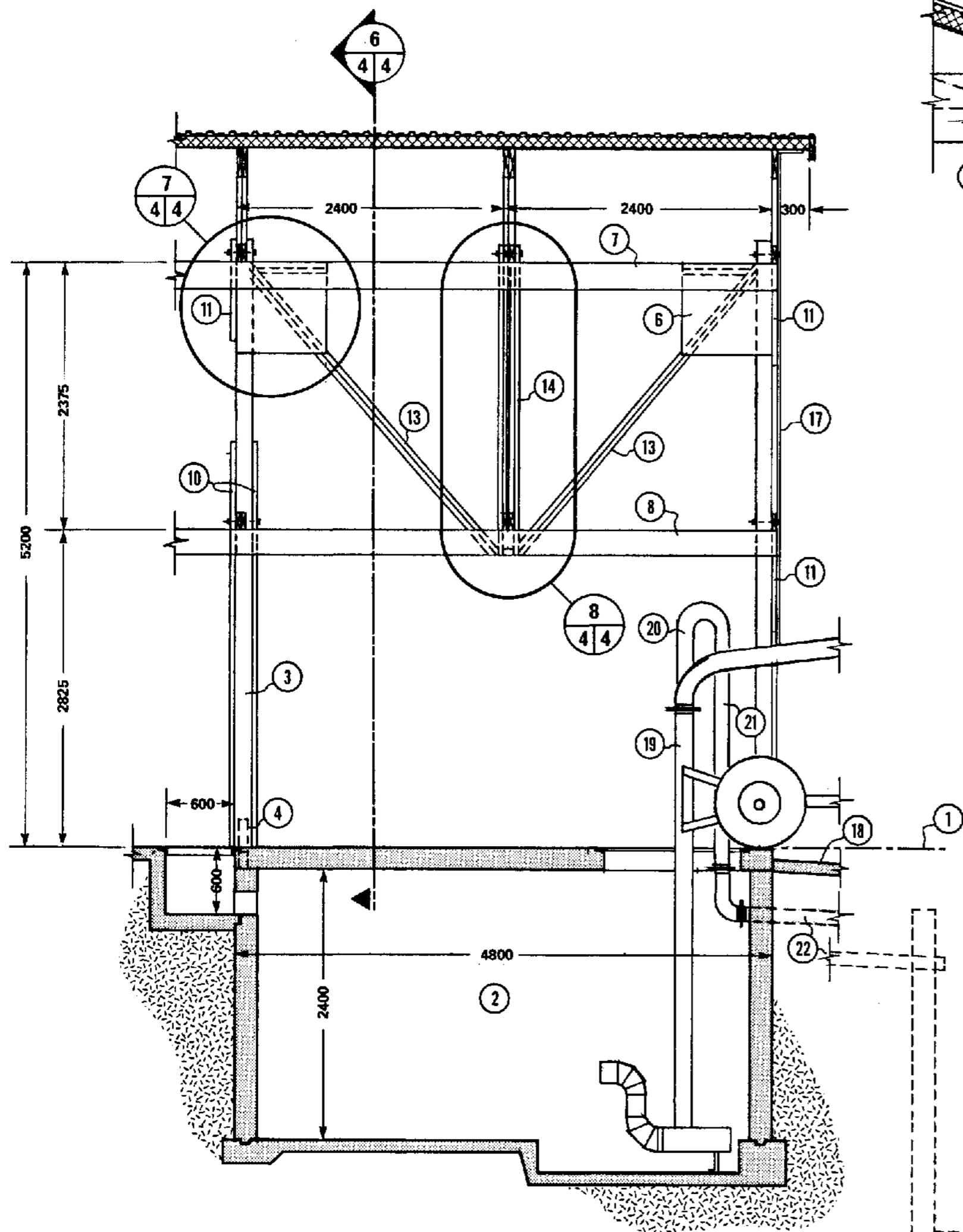
SYM	REVISIONS	CHECKED	DATE	APPROVED

CANADA
PLAN SERVICE

CROSS SECTION

DESIGNED <i>D.I.M.</i>	DATE B4-08	PLAN M-2104
DRAWN D. BROWN	REVISED	
TRACED	DETAIL NUMBER <u> A </u>	ORIGINATES ON SHEET <u> B </u>
CHECKED <i>J.A.M.</i>	<u> A </u> / <u> B </u> / <u> C </u>	DRAWN ON SHEET <u> C </u>
		SHEET 3 OF





- ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS OTHERWISE SPECIFIED
- 1 datum line
 - 2 manure tank, see reinforcing details sheet 5
 - 3 140 x 140 x 5400 mm poles sitting on manure tank; drill poles for steel strap tie (4) and bolts, then soak in penetrating wood preservative before erecting; notch to receive trusses at mid-height and top, also notch exterior side wall poles (beyond) to match, see sheet 5; 4 interior poles supporting (13) good to 2.1 kN/m² roof snow load for North Species go.1, other interior poles good to 3.2 kN/m²
 - 4 fastening of poles, see sheet 5 note (13)
 - 5 M20 machine bolts, washers both sides of pole
 - 6 18.5 mm x 800 x 800 mm plywood gusset, both sides of pole; no. of 76 mm concrete nails at each connection (each side) indicated thus: (30)
 - 7 38 x 235 mm continuous plate beam
 - 8 38 x 235 x 4800 mm plate beam at end spans only
 - 9 single or doubled truss, except single truss at endwalls
 - 10 38 x 140 x 3600 mm scab both sides of pole, nail with 102 mm spiral nails
 - 11 38 x 140 x 900 mm scab
 - 12 2 - 38 x 140 x 1000 mm horizontal blocking between (7) & (8)
 - 13 2 - 38 x 140 mm angled tension struts, fitted between (7) & (8)
 - 14 vertical compression strut, made from 4 - 38 x 140 mm, with 38 x 140 x 200 mm long blocking at mid-point
 - 15 saddle for (14) out of 2 - 1.22 (18 ga.) x 140 x 1500 mm steel strap; no. of 76 mm concrete nails indicated thus: (22)
 - 16 filler blocking cut from 38 x 140 mm
 - 17 endwall insulation & cladding to match sidewalls
 - 18 concrete ramp, slope 1:50 max.
 - 19 to manure tanker or long-term storage
 - 20 detachable J-pipe, connects pump output to transfer line; make J-pipe from couplings and pipe by pump manufacturer
 - 21 5" galv. steel pipe & fittings, with quick coupler to J-pipe for manure pump connection; couple to (22)
 - 22 125 or 150 mm (same as pump size) PVC pipe, uniform slope (either uphill or downhill) to long term storage; flush with water and drain at end of pumping to prevent freezing

SYM	REVISIONS	CHECKED	DATE	APPROVED

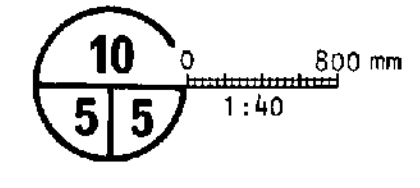
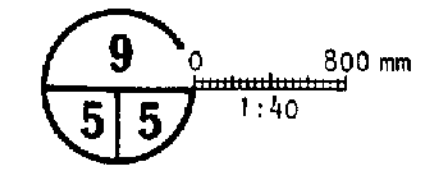
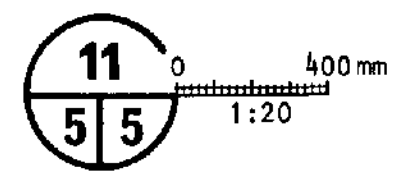
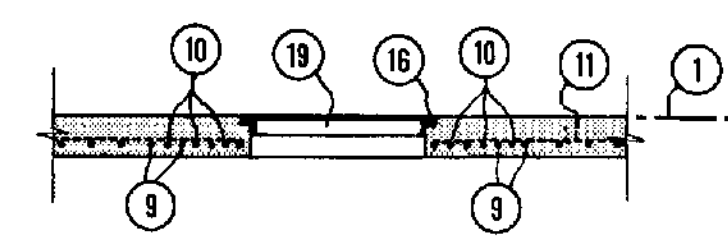
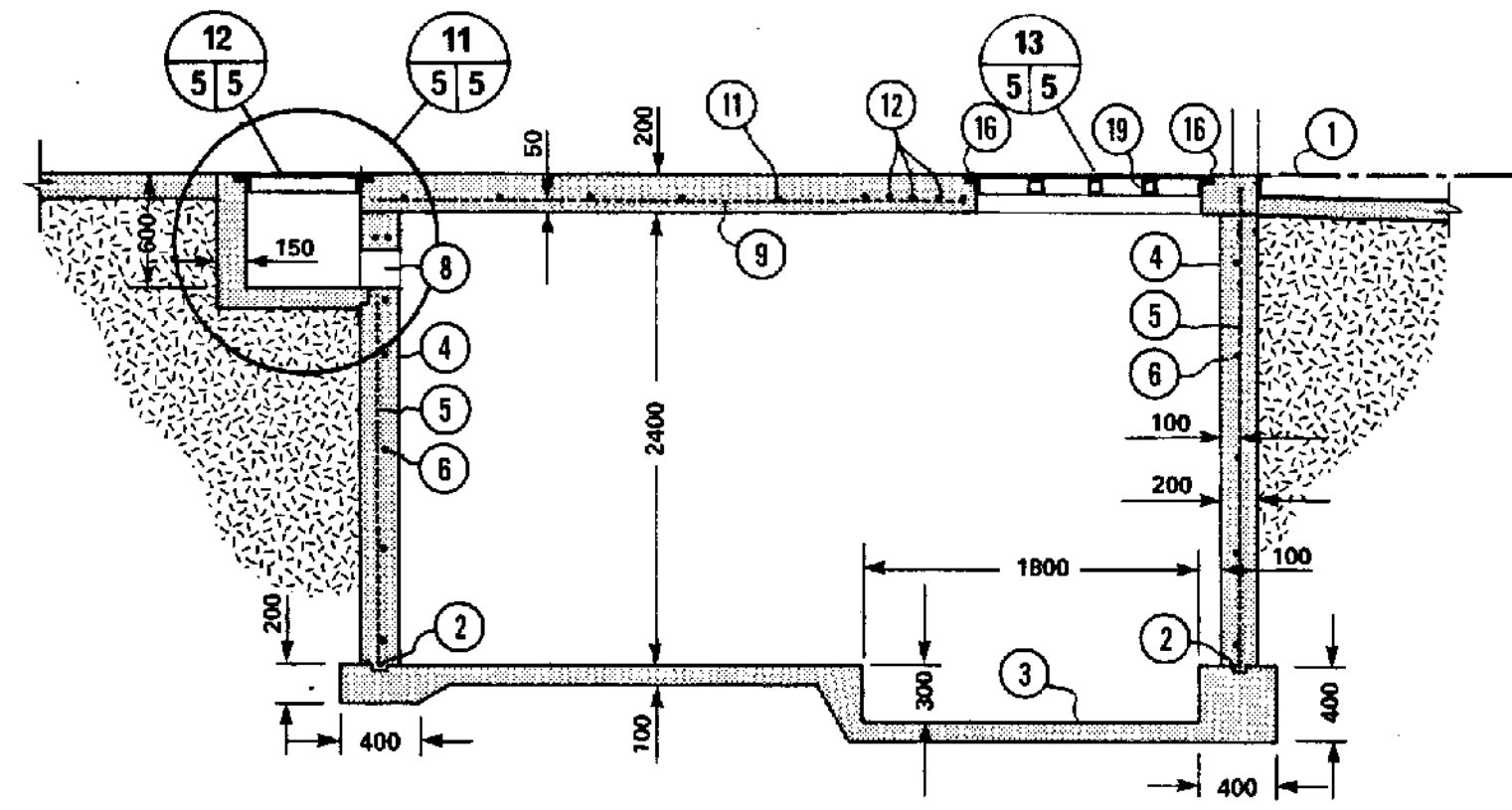
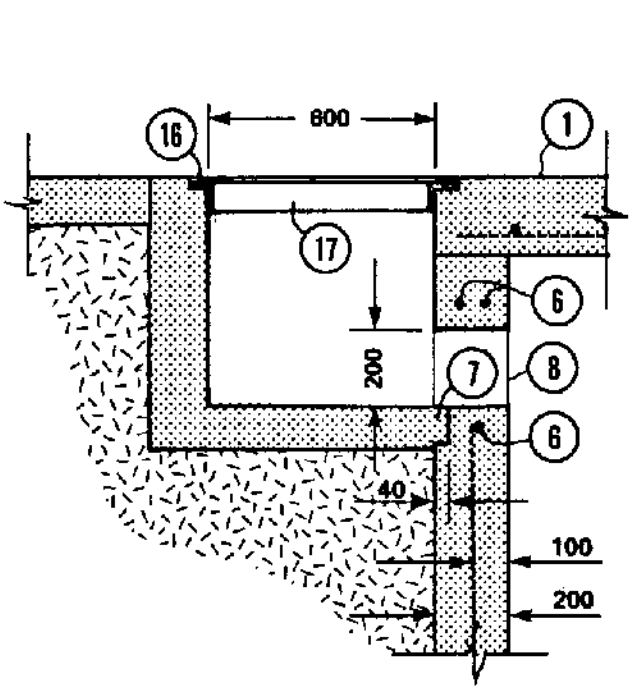
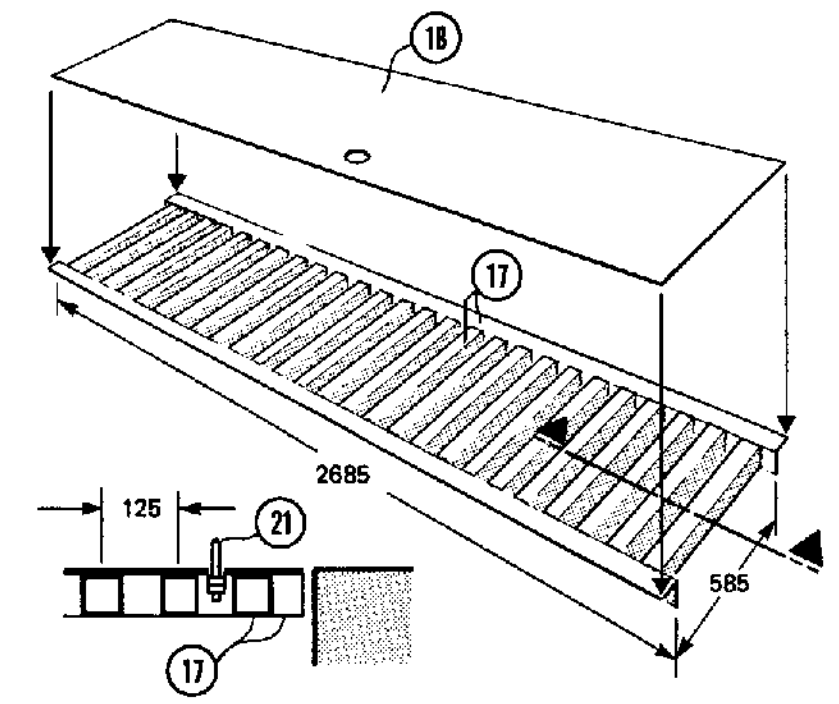
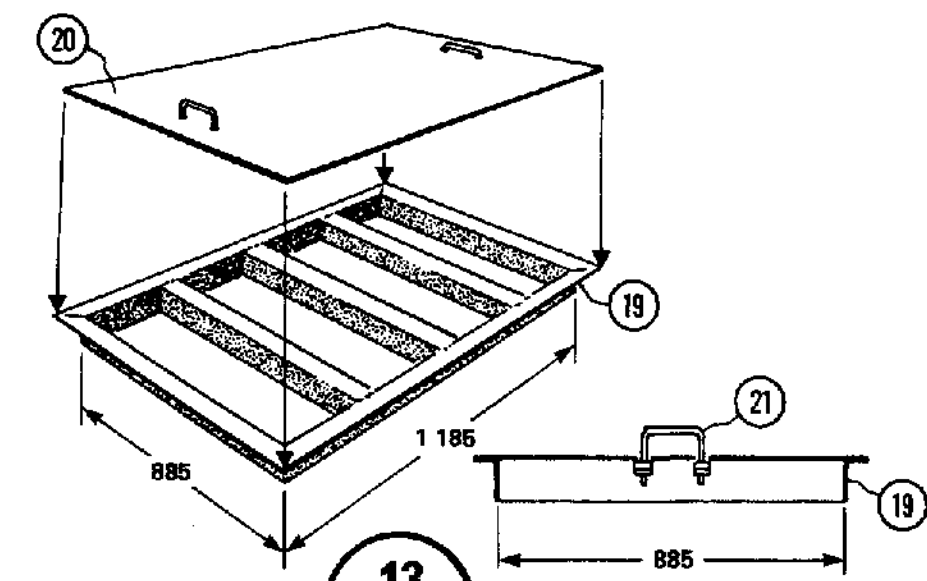
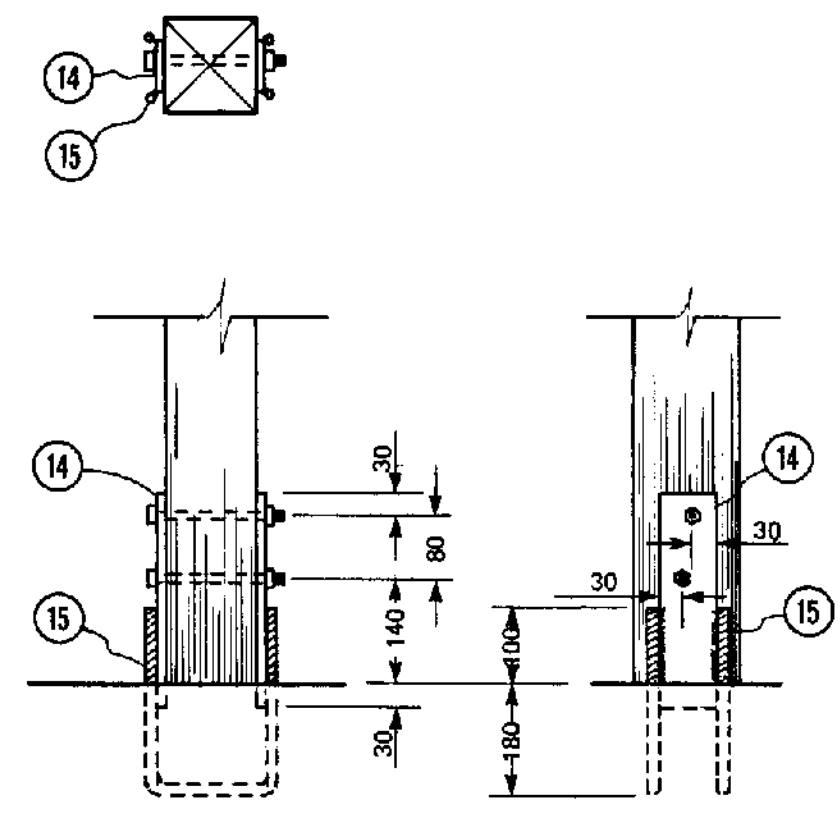
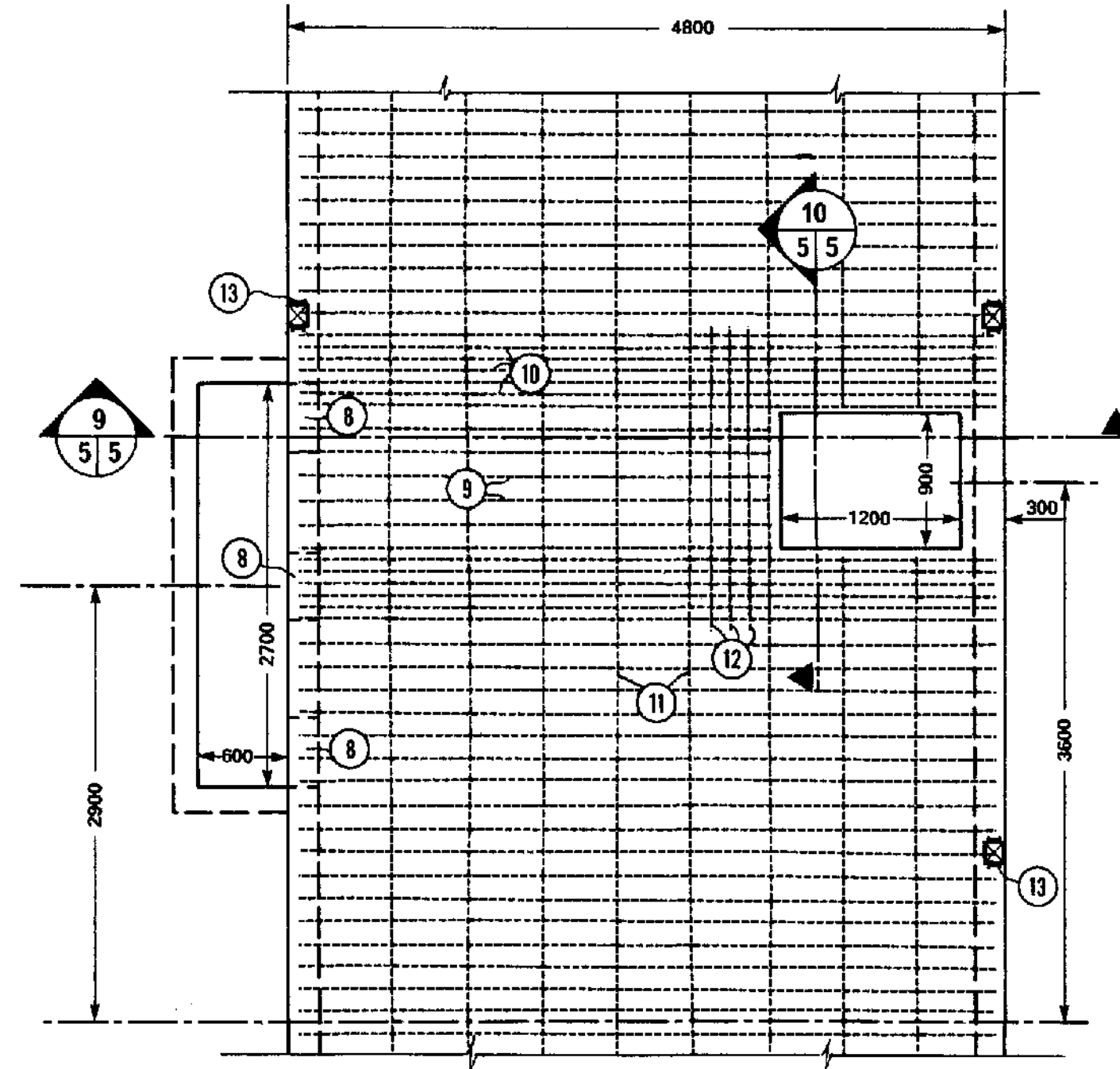
CANADA PLAN SERVICE

SECTION SHOWING TRUSS SUPPORT

DESIGNED <i>D.I.M.</i>	DATE 84-08	PLAN
DRAWN D. BROWN	REVISED	M-2104
TRACED	DETAIL NUMBER <i>A</i>	SHEET 4 OF
CHECKED <i>J.A.M.</i>	ORIGINATES ON SHEET <i>B</i>	
	DRAWN ON SHEET <i>C</i>	

ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS OTHERWISE SPECIFIED

- 1 datum line
- 2 38 x 89 mm keyway
- 3 1800 x 1200 mm sump
- 4 200 mm concrete tank wall
- 5 15M vertical rebars @ 450 mm oc, extend into floor
- 6 15M horizontal rebars @ 500 mm oc
- 7 notch in concrete using a 38 x 89 mm, nailed on inside of formwork
- 8 3 - 200 x 450 mm openings in tank wall
- 9 15M x 4700 mm rebars @ 150 mm oc
- 10 3 - 15M x 4700 mm rebars between ⑨, each side of pump-out hatch
- 11 15M rebars @ 500 mm oc
- 12 3 - 15M x 2000 mm between ⑪
- 13 typical pole anchor
- 14 9 x 75 x 280 mm steel strap tie, drill for 2 - M20 x 190 mm bolts to hold pole in place, attach strap tie to form work; paint with asphalt rustproofing before installing poles
- 15 2 - 20M U-bolts, welded to strap tie ⑭
- 16 form notch in concrete to allow flush mounting of cover
- 17 scrape-in hatch made of 26 - 50,8 x 50,8 x 3,81 mm square structural tubing @ 125 mm oc, welded to 2 - 55 x 55 x 6 mm steel angles
- 18 18.5 mm plywood or 6 mm checkered steel plate cover, flush with top of concrete
- 19 access hatch made of 76.2 x 50.8 x 6.35 mm rectangular structural tubing @ 300 mm oc welded to 75 x 50 x 6 mm steel angle frame
- 20 6 mm checkered plate welded to ⑲
- 21 2 - 13 mm steel rod handles with double nuts below, in 18 mm holes



SYM	REVISIONS	CHECKED	DATE	APPROVED

CANADA PLAN SERVICE MANURE TANK DETAILS

DESIGNED <i>D.J.M.</i>	DATE 84-08	PLAN
DRAWN D. BROWN	REVISED	M-2104
TRACED	DETAIL NUMBER <i>A</i>	SHEET 5 OF
CHECKED <i>J.A.M.</i>	ORIGINATES ON SHEET <i>B</i> DRAWN ON SHEET <i>C</i>	